

### Recent developments in sociology of risk and uncertainty

Zinn, Jens O.

Veröffentlichungsversion / Published Version  
Zeitschriftenartikel / journal article

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:  
GESIS - Leibniz-Institut für Sozialwissenschaften

#### Empfohlene Zitierung / Suggested Citation:

Zinn, J. O. (2006). Recent developments in sociology of risk and uncertainty. *Historical Social Research*, 31(2), 275-286. <https://doi.org/10.12759/hsr.31.2006.2.275-286>

#### Nutzungsbedingungen:

Dieser Text wird unter einer CC BY Lizenz (Namensnennung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:  
<https://creativecommons.org/licenses/by/4.0/deed.de>

#### Terms of use:

This document is made available under a CC BY Licence (Attribution). For more Information see:  
<https://creativecommons.org/licenses/by/4.0>

## Recent Developments in Sociology of Risk and Uncertainty

*Jens O. Zinn* \*

**Abstract:** This article gives a brief overview of the main streams and recent developments of sociological research and theorising on risk. It outlines shifts in cultural theory on risk, from risk society to reflexive modernisation, from governmentality on risk to governmentality on uncertainty and adds the often neglected systems theory approach. Some important insights result from these developments: Risk and uncertainty should be interpreted as systematically linked to each other because there are different ways beyond instrumental rationality how risk can be managed. Furthermore, risk understood as rational calculation is an uncertain business, too. Risks are at the same time both real and socially constructed. Risks and uncertainties have to be managed case by case. When ignorance or uncertainty is too big there are no general rationalities available to make reasonable decisions. Finally, it is argued for more theoretical integration of the outlined approaches. The article finishes with some considerations regarding the contribution of sociology to risk research.

### 1. Introduction

This article gives a brief overview of the main streams and recent developments of sociological risk research and theorising (compare ZINN & TAY-

---

\* Address all communications to: Jens O. Zinn, ESRC "Social Contexts and Responses to Risk" network (SCARR), School of Social Policy, Sociology and Social Research (SSPSSR), Cornwallis Building NE, University of Kent at Canterbury, Canterbury, Kent CT2 7NF, UK; e-mail: j.zinn@kent.ac.uk or jens.zinn@gmx.net.

First published: Zinn, Jens O. (2006, January). Recent Developments in Sociology of Risk and Uncertainty [36 paragraphs]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research* [On-line Journal], 7(1), Art. 30.

Available at: <http://www.qualitative-research.net/fqs-texte/1-06/06-1-30-e.htm>.

LOR-GOOBY 2006a,b; ZINN 2007) in order to show paths for further activities (compare also the literature review paper on the SCARR-network's homepage, ZINN 2004a). The emphasis lies on sociology even though a lot could be said about interesting developments in other disciplines such as economics and psychology (compare ZINN & TAYLOR-GOOBY 2006a,b). The rational choice approach is not considered because it is in many respects close to economical considerations of decision making and rational action. Finally the risk perception theory remains unconsidered, which is closer to psychology or social-psychology of risk.

The outline of risk theorising is oriented at three different streams of sociological thinking on risk and uncertainty. A stream on risk and uncertainty in the context of (reflexive) modernisation can be distinguished from a cultural approach on risk. Additionally, the governmentality approach foremost disseminated in Britain and Australia, understands risk as a specific way to govern populations. These approaches are complemented by the systems theory approach on risk which is mainly acknowledged in German theorising on risk.

## 2. From Risk Society to a General Theory of Risk in Reflexive Modernity

The most well known approach in recent sociology of risk is the perspective of the "risk society" (BECK 1986, 1992). This approach had a very large initial impact, but conceptual and empirical critiques have developed subsequently.

One of the issues frequently mentioned refers to the concept of risk in BECK's risk society. The criticism is that "risk" is narrowed to the responses of technical and environmental risks as unforeseen consequences of industrialisation. The narrowed view on technical and statistical risk management seems to be insufficient for the given complexity concerning, for example, governmental risk-strategies and rationalities (DEAN 1999), emotional and aesthetic (LASH 2000) or socio-cultural (TULLOCH & LUPTON 2003) perceptions and responses to risk.<sup>1</sup>

However, a broader approach aiming for a societal perspective on risk but in line with the concept of reflexive modernisation starts with uncertainty instead of risk (BONSS 1995, p. 306). In this perspective, the probabilistic concept of risk emerges as a special case of how security may be constructed. But the insight that calculability is a cultural construction only valid for special cases

---

<sup>1</sup> What is often not sufficiently recognised is the more complex outline of the process of reflexive modernisation which encompasses not only the development of new risks as side effects of industrialisation but new uncertainties as an outcome of ongoing processes of individualisation as well (BECK 1992).

and not an objective matter has lead neither to a fundamental rejection of every risk-calculation nor to any subjective risk construction.

What is important is the change in interpretation and foundation of probability-calculations. They have become subjective and simultaneously related to contexts. Referring to the concept of bounded rationality, it is emphasised that social and cultural rationalities are both interactive and limited. They are grounded not on one general principle but on several particular concepts (as science, tradition, values, emotion). They complement each other situationally rather than systematically and in no way refer to an overall rational plan. It looks like a cultural “muddling through” which could be described under a different perspective as political conflicts about risk and security (BONSS 1995, p. 302).

Therefore uncertainty has to be accepted as a fundamental modern experience and the view on problems of uncertainty needs to be changed. It should no longer be redefined as a problem of how to produce order and certainty. From such a perspective it would be already decided that the transformation of uncertainty into certainty, disorder to order, and ambiguity into clearness would be the optimal and only solution that should be strived for. However, this view on uncertainty is also dangerous, because of the latent consequences of risk action or second order dangers (BONSS 1995, pp. 305f.). That means that protective actions or security measures also produce dangers—called second order dangers—which should be recognised. Sensibility regarding unforeseen outcomes would be necessary rather than believe in the infallibility of a specific risk-construction.

Consequently recent research (for example HOBSON-WEST 2003 and the publications of the projects of the Collaborative Research Centre Reflexive Modernization, BECK & LAU 2004; Issue 2/3 2005 of the Journal “Soziale Welt”) focuses on uncertainties (still foremost technical, medical, or scientific limits of producing certainty) and how they are managed or how they could be managed best (not as a final transformation of uncertainty into certainty but as a process of managing unpreventable uncertainties).

### 3. From Risk and Culture to a Socio-Cultural Approach on Risk

Even though the theoretical basis for cultural research is broader (TULLOCH 2006) cultural studies on risk often refer to the work of DOUGLAS (1966, 1992) and DOUGLAS and WILDAVSKY (1982). In these approaches risk appears as a culturally given way to respond to threats of the boundaries of a group, organisation or society and its definitions of reality and ways to maintain social order. Therefore risk is mainly understood in the difference between

Self and Other. In the well-known grid/group schema DOUGLAS and WILDAVSKY (1982) develop their functionalist notion of the link between modes of social organisation and the individual's responses to risk.

This perspective split up into two streams. A quantitative standardised approach contributes to the already developed research on risk perception.<sup>2</sup> A qualitative perspective it is still used as a heuristic in order to analyse the different responses to risk (for example in organisations, ADAMS 2002) and societal subgroups (DOUGLAS & CALVEZ 1990).

Even though this approach was mainly criticised for an oversimplification of the far more complex and dynamic processes of how risk is dealt with and experienced (TULLOCH & LUPTON 2003) the approach is quite influential in its core concept to link risk perception and responses to processes of identity construction and group formation by the distinction between Self and Other. The "socio-cultural" approach (TULLOCH & LUPTON 2003) and "risk culture" (LASH 2000) try to overcome the functionalist view on risk by aiming at the far more complex and dynamic processes of risk issues in everyday life. Instead, risk knowledge is seen as historical and local, as constantly contested and as a subject to disputes and debates over their nature, their control and who is to blame for their creation. The advantage of these approaches is that thick descriptions of risk-taking and responses to risk are produced. By doing so a high variety of dimensions in risk-perception and risk-taking are described. It becomes clear, for instance, that risks are multidimensional and that risk-taking could be valued positively as well as negatively (LUPTON & TULLOCH 2002, TULLOCH & LUPTON 2003).<sup>3</sup>

Furthermore, the socio-cultural perspective shows how risk is interwoven in processes of identity-formation and—continuation as well as in processes of group constitution (TULLOCH & LUPTON 2003, MITCHELL et al. 2001). The importance of power-relations and the role of aesthetics, habituations and emotions in people's responses to risk are emphasised. This perspective foremost focuses on the individual's risk perception and management in cultural contexts (often applied as [media-] discourses). It shows the limits of approaches, which assume context independent rationalities like rational choice or over-homogeneous risk concepts like governmentality or risk society, to explain how people manage and understand risk issues.

Recent research has started to bring together and test different approaches on risk in empirical projects using, for example the socio-cultural perspective with the risk society approach (TULLOCH & LUPTON 2003). However, using

---

<sup>2</sup> However, the quantitative approach using the socio-cultural approach in a framework of risk-perception is mainly criticised for the limited evidence of the influence of cultural issues on risk-perception (for example: WILKINSON 2001) and its limits of the standardised instrument (RIPPL 2002).

<sup>3</sup> The positive aspect of risk is also emphasised in the work on edgework in the context of high risk sports or criminology and a growing amount of societal domains (LYNG 2005).

mainly qualitative methods it is difficult to produce general assumptions about (tendencies of) social change. Thus, the socio-cultural approach foremost argues against homogenising concepts of social change. Furthermore, this approach seems to accept that living in late modernity implies the acceptance of some degree of uncertainty and instability (CROOK 1999, p. 10).

#### 4. From Governmentality of Risk to the Governance of Uncertainty

The literature on Governmentality and risk refers to FOUCAULT (1991) and his concept of a new style of governance in modernity (BURCHELL et al. 1991; BARRY et al. 1996; DEAN 1999; O'MALLEY 2004). In this approach (regularly rather understood as a method than a theory, O'MALLEY 2007) risk is mainly understood as a concept produced entirely socially. There is no outer world, which forces society to respond to risk. Instead risk is understood as a specific way how to shape and control populations and to govern societies.

The significant societal transformation to a modern style of governance is that of a strategy which aims at persons themselves (with technologies to control bodies and persons directly) to a style which is concerned with populations, abstract factors and indicators. The individual only appears as a carrier of specific indicators under the core concept of risk. Consequently treatment no longer aims at specific persons as such but at risk-groups identified by a bundle of factors and indicators. Risk is not just at the core of governance of institutions, organisations and governments. As well each individual is forced to interpret her- or himself as an autonomous subject and is treated as such by societal instances.

In the perspective of governmentality, power is not just understood as the prerogative of authorities. Rather it is constituted in practices as well as in knowledge; the way in which people think about an issue. Applying this perspective, research studies on governmentality use the concepts such as "truth programmes", "power strategies" and "technologies of the self" in order to show how risk is used in societal games of power and control. These concepts enable research to analyse carefully the production processes of social reality and subjectivity in a network of power and control.

This approach is criticised in a socio-cultural perspective (by LUPTON 1999) for its generalised model of the self which would underestimate the possibilities and different responses to social risk demands. There is relatively little research which shows how social groups fight back against social ascriptions. Even though HIER (2002) is concerned with counter-communications it is on the level of groups and not of different individual's subjective coping and responding to social ascriptions.

Additionally, an internal critique aims towards the narrowed view of the governmentality studies to risk (O'MALLEY 2004). The emphasis of risk as the central rational strategy by which modern industrial societies govern populations has narrowed the perspective. O'MALLEY claims that it should be recognised that liberal strategies of governance are also strongly linked to strategies managing uncertainties which have to be analysed as such:

... it is not at all clear that risk is becoming the dominant telos or organising principle of contemporary government, as many suggest (Dean 1995a; Rose 1999b). Doubtless it is a very salient principle; but the promotion of neo-liberalism and entrepreneurial governance has also pressed a new telos of creative uncertainty to the foreground. Rather than concerning ourselves about a possibly futile exercise in measuring whether risk is 'spreading', we should recognise that risk and uncertainty are both being valorised in new ways and forms. (O'MALLEY 2004, p. 174)

Such a perspective in governmentality would converge with other sociological approaches on risk (as modernisation theory), discovering the importance of the more general concept of uncertainty which gives access to a differentiated way to analyse the strategies which, apart from risk, are still and necessarily there to cope with uncertainty and ignorance.

## 5. Risk and Systems Theory

The system theory's approach to risk in the tradition of LUHMANN (1993) is mainly advocated by JAPP (1996, 2000, compare also: TACKE 2001). The general research question in the context of this approach is how the ability of society to evolve could be improved and how the ability to solve problems could be increased. The original answer is by means of functional differentiation in societal sub-areas or subsystems like economy, justice, science etc. Since functional differentiation is limited, semantics are needed which cover different societal functions but do still accept the integrity of the specific functional logics of the sub-systems.

Risk problems could be managed from the perspective of system theory by strategies to combine first and second order observations. This means in a more intelligible language that neither partial rationality (for example expressed through the concerns of neighbours of a nuclear power station) nor general public interest (securing the provision of electric energy) should be maximised, but a temporal combination of both is needed. One strategy as already mentioned is the embedding of partial interests of residents in a more general public interest so that suboptimal solutions become acceptable for the advantage of the public welfare. This kind of strategy rests on the acknowledgement and self-commitment to a public interest. Another strategy would be to reweigh a pure instrumental rationality to a more symbolic rationality or to seek after

innovations. Innovations redefine a problem and a situation and reintegrate further groups and criteria which have been excluded before (WIESENTHAL 1990, pp. 40f.).

Thus, strategies of “evolutionary policy of risk-administration” (JAPP 2000, pp. 92f.) cannot produce substantial rationality in the sense of single right decisions or general obligatory purposes and reasonable consensus. In order to ensure more complex realities it is necessary to observe continuously the outcomes. The uncertainty of the future is used to open opportunities for action, but the observation of the results is needed in order to intervene if it seems to be reasonable. However, in the perspective of system theory, such strategies do not lead to definite solutions but to new uncertainties.

Therefore trust is a central issue in JAPP’s considerations. In his view trust is needed to generate readiness for risk-taking. Only with prevention but without trust, there are no chances to learn, and only hope or belief but no risky advance concession would be made (JAPP 2000, p.91): The problem is, however, that for several areas where society has to deal with risk, the possibility of long-term learning by trial and error is not tolerated (PERROW 1984). Under such conditions the ability to act can only be protected by trust, for example, in systems as science, technology or government due to a lack of information or of transparency (ESPOSITO 1997). This leads to the dilemma that trust is quite rational and necessary but also dangerous. However, not to trust and therefore not to act would be dangerous as well!

## 6. Where is Sociological Risk-Theory Heading?

In most theoretical thinking risk is reasonably understood in relation to uncertainty. This is the case for a societal approach on risk in the context of modernisation theory where risk is seen as one special rational strategy to transform unmanageable contingency into manageable complexity (BONSS 1997, p. 24; ZINN 2004b, p. 203). It is also valid for the governmentality approach, even though it is quite a current development to acknowledge theoretically the significance of uncertainty as such as well. In system theory the distinction between risk and danger is introduced to approach the problem of uncertainty as a problem of responsibility. In the perspective of decision making the world is understood as inherently contingent. In order to act contingency has to be transformed into a manageable complexity, but when a decision is made there is again the uncertainty whether one took the right decision and whether the outcomes will occur as expected.

It seems to become generally accepted that the rational calculation of risk is uncertain, too. What follows from this is not a general rejection of rationality but a situated use of statistical strategies. Other strategies are used to cope with risk and uncertainty. Since uncertainty cannot be resolved ultimately and is



sometimes also understood (just like risk) as something positive, many approaches converge more or less explicitly on the acknowledgement of uncertainty as a basic experience of modernity.

In the governmentality approach, O'MALLEY (2004) has recently suggested, not to focus only on the constructions of risks (and the transformation of uncertainty into risk) but also on the management of uncertainties as governmental strategies. That is, because most problems are not constituted as clear risk problems but as problems of unsolvable uncertainty. Since uncertainty cannot be solved by objective strategies alone, moral and political aspects become more important.

There is still the tendency in risk-research to distinguish between objective statistical/technical risks as the real risks and social or subjective risks as biased perceptions of objective risks. Even though there are better and worse scientific expertise and better or worse informed public, most sociological approaches rely on a "weak" constructivism as their normal epistemological approach to risk. Risk is understood as socially constructed but there is a world "out there" even though we have no direct access to it. Risks are socially constructed and objective at the same time (LATOUR 1993; BECK 1999).

Since there seem to be no general but only situational and case related solutions for risk-problems no general recommendations for an increasing public readiness for risk-taking (WILSDON & WILLIS 2004, FUREDI 2002) or precaution (HARREMOES 2002) can be given (BONSS 1995, JAPP 2000). The demand for higher risk-taking is as misleading as a maximisation of precaution as long as both are understood as positions which have to be supported or refused in general. There is no general rationality available. Instead, risks have to be managed and valued case-by-case.

If the British public currently seems to be more risk-averse to governmental decisions, this must not be interpreted as irrational, but as rational response to the strategies the government has recently used in order to publicly manage risks (e.g. BSE). To rebuild trust is a long and difficult task.

Risk has been a sociological issue for at least twenty years, but there is comparatively little theoretical integration or discussion between the different approaches (one of the exceptions is TULLOCH & LUPTON 2003). Currently some similarities as mentioned are observable and we can hope that more integrated theoretical work will be developed in the future. Since there is no institutionalised coordination on the level of ISA or ESA the foundation of a Research Committee (RC) or Research Network (RN) on "the sociology of risk and uncertainty" would be a first significant step in order to integrate the range of sociological research and theorising on risk in the future.

So far there have been only few systematic links developed between media research and risk research. Often the sociological assumptions about the impact of the media ignore the already developed knowledge in media research.

Even fewer links have been developed between biographical research and risk research. The biographical concept of the subject in biographical approaches can be used to inform research on the influence of social contexts (as media, social class) and their response to risk. The biographical approach also opens connections to psychological and economical approaches to risk. By including biographical aspects, psychology, as well as economics, would gain a more dynamic model of the self and its development.

The socio-cultural approach could be connected to newer developments in other domains of risk research, as “quasi-rational” economics, which are growingly aware of “non-rational” factors as emotions and aesthetics (ZINN & TAYLOR-GOODY 2006b).

## 7. Sociology's Contribution to Risk Research

Since there are several quite different impacts of sociology on risk research one specific contribution can be hardly pointed out. However, the most important tribute of sociology to this topic has been certainly the linkage of risk problems to society in general. The acknowledgement that risk problems are deeply embedded in the society we live in and that they cannot be coped with by objective and technical risk assessment was the initial trigger for risk-sociology. In this context especially failures of governmental risk-management have shown that there is such a thing as society which needs to be taken into account.

Even more, it has been shown that manifold risk-knowledge is available in society, and scientific risk knowledge is not necessarily prior to local as well as lay-people knowledge (WYNNE 1982, 1987, 1996). Therefore risk-management has to recognise the different forms and levels of knowledge if it wants to be successful.

Sociology also contributes to risk research a critical distance to our normative implications. It discovers the normative idea that uncertainties have to be transformed in certainties by rational strategies, as a modern ideology with some unforeseen and also dangerous outcomes. The problem of “second order dangers”, the management of ignorance and the at least unsolvable uncertainty in societal development are core issues which secure that risk research reflects upon their implicit assumptions narrowing their perspective. Sociology shows that neither a one-sided increase of precautions nor of undamped scientific development can be recommended.

## References

- Adams, John & Thompson, Michael (2002). *Taking account of societal concerns about risk*. Sudbury, Suffolk: HSE Books.
- Barry, Andrew, Osborne, Thomas & Rose, Nikolas (1996). *Foucault and political reason*. London: UCL Press.
- Beck, Ulrich (1986). *Risikogesellschaft: auf dem Weg in eine andere Moderne*. Frankfurt am Main: Suhrkamp.
- Beck, Ulrich (1992). *Risk society: towards a new modernity*. London: Sage.
- Beck, Ulrich (1999). *World risk society*. Malden, MA: Polity Press.
- Beck, Ulrich & Lau, Christoph (Eds.) (2004). *Entgrenzung und Entscheidung. Was ist neu an der Theorie reflexiver Modernisierung?* Frankfurt am Main: Suhrkamp.
- Bonss, Wolfgang (1995). *Vom Risiko: Unsicherheit und Ungewissheit in der Moderne*. Hamburg: Hamburger Edition.
- Bonss, Wolfgang (1997). Die Gesellschaftliche Konstruktion von Sicherheit. In Ekkehard Lippert, Andreas Prüfert & Günther Wachtler (Eds.), *Sicherheit in der unsicheren Gesellschaft* (pp. 21-41). Opladen: Westdeutscher Verlag.
- Burchell, Graham, Gordon, Colin & Miller, Peter (1991). *The Foucault effect. Studies in governmentality*. Chicago: University of Chicago Press.
- Crook, Stephen (1999). Ordering risks. In Deborah Lupton (Ed.), *Risk and sociocultural theory: New directions and perspectives* (pp. 160-185). Cambridge: Cambridge University Press.
- Dean, Mitchel (1999). *Governmentality: Power and rule in modern society*. London: Sage.
- Douglas, Mary (1966). *Purity and danger: An analysis of concepts of pollution and taboo*. New York: Praeger.
- Douglas, Mary (1992). *Risk and blame: Essays in cultural theory*. London, New York: Routledge.
- Douglas, Mary & Wildavsky, Aron B. (1982). *Risk and culture: an essay on the selection of technical and environmental dangers*. Berkeley: University of California Press.
- Esposito, Elena (1997). Unlösbarkeit der Reflexionsprobleme. *Soziale Systeme*, 3, 379-392.
- Foucault, Michel (1991). Governmentality. In Graham Burchell, Colin Gordon & Peter Miller (Eds.), *The Foucault effect* (pp. 87-104). Chicago: University of Chicago Press.
- Furedi, Frank (2002). *The culture of fear*. London; New York: Continuum.
- Harremoës, Paul, Gee, David, MacGarvin, Malcom, Stirling, Andy, Keys, Jane, Wynne, Brian & Guedes Vaz, Sofia (2002). *The precautionary principle in the 20th century: Late lessons from early warnings*. London, Sterling, VA: Earthscan Publications.
- Hier, Sean P. (2002) Raves, risks and the ecstasy panic: A case study in the subversive nature of moral regulation. *Canadian Journal of Sociology*, 27, 33-57.

- Hobson-West, Pru (2003). Understanding vaccination resistance: moving beyond risk. *Health, Risk & Society*, 5(3), 273-283.
- Japp, Klaus Peter (1996). *Soziologische Risikotheorie*. Weinheim: Juventa.
- Japp, Klaus Peter (2000). *Risiko*. Bielefeld: Transcript Verlag.
- Lash, Scott (2000). Risk culture. In Barbara Adam, Ulrich Beck & Jost Van Loon (Eds.), *The risk society and beyond. Critical issues for social theory* (pp. 47-62). London: Sage.
- Latour, Bruno (1993). *We have never been modern*. Cambridge, Mass.: Harvard University Press.
- Luhmann, Niklas (1968). *Vertrauen: Ein Mechanismus der Reduktion sozialer Komplexität*. Stuttgart: F. Enke.
- Lupton, Deborah (1999). *Risk*. London: Routledge.
- Lupton, Deborah & Tulloch, John (2002). "Life would be pretty dull without risk": Voluntary risk-taking and its pleasures. *Health, Risk & Society*, 4, 113-124.
- Lyng, Stephen (2005). *Edgework. The sociology of risk-taking*. New York; London: Routledge.
- Mitchell, Wendy A., Crawshaw, Paul, Bunton, Robin & Green, Eileen E. (2001). Situating young people's experiences of risk and identity. *Health, Risk & Society*, 3, 217-233.
- O'Malley, Pat (2004). *Risk, uncertainty and government*. London: Glashouse Press.
- O'Malley, Pat (2007, in preparation). Governmentality and risk. In Jens O. Zinn (Ed.), *Social theories on risk and uncertainty. An introduction*. Oxford, Malden MA: Blackwell.
- Perrow, Charles (1984). *Normal accidents. Living with high-risk technologies*. Princeton, NJ: Princeton University Press.
- Rippl, Susanne (2002). Cultural theory and risk perception: A proposal for a better measurement. *Journal of Risk Research*, 5(2), 147-165.
- Tacke, Veronika (2001). BSE as an organizational construction. *British Journal of Sociology*, 52, 293-312.
- Tulloch, John & Lupton, Deborah (2003). *Risk and everyday life*. London: Sage.
- Wiesenthal, Helmut (1990). Ist Sozialverträglichkeit gleich Betroffenenpartizipation? *Soziale Welt*, 41, 28-46.
- Wilkinson, Iain (2001). Social theories of risk perception: At once indispensable and insufficient. *Current Sociology*, 49, 1-22.
- Wilsdon, James & Willis, Rebecca (2004). *See-through science*. London: DEMOS.
- Wynne, Brian (1982). Institutional mythologies and dual societies in the management of risk. In Howard C. Kunreuther & Eryl V. Ley (Eds.), *The risk analysis controversy. An institutional perspective* (pp. 127-143). Berlin: Springer.
- Wynne, Brian (Ed.) (1987). *Risk management and hazardous waste: Implementation and the dialectics of credibility*. Berlin: Springer.

- Wynne, Brian (1996). May the sheep safely graze? A reflexive view of the expert-lay knowledge divide. In Scott Lash, Bronislaw Szerszynski & Brian Wynne (Eds.), *Risk, environment & modernity* (pp. 44-83). London: Sage.
- Zinn, Jens O. (2004a). *Literature review: Sociology and risk*. Canterbury, Social Contexts and Responses to Risk Network (SCARR). Available at: <http://www.kent.ac.uk/scarr/papers/Sociology%20Literature%20Review%20WP1.04%20Zinn.pdf> [Date of Access: December 1st, 2005].
- Zinn, Jens O. (2004b). Health, risk and uncertainty in the life course: A typology of biographical certainty constructions. *Social Theory and Health*, 2(3), 199-221.
- Zinn, Jens O. & Taylor-Gooby, Peter (2006a). Risk as an inter-disciplinary research area. In Peter Taylor-Gooby & Jens O. Zinn (Eds.), *Risk in social science*. Oxford: Oxford University Press.
- Zinn, Jens O. & Taylor-Gooby, Peter (2006b). The challenge of (how to manage) new risks and uncertainties. In Peter Taylor-Gooby & Jens O. Zinn 2006 (Eds.), *Risk in social science*. Oxford: Oxford University Press.
- Zinn, Jens O. (Ed.) (2007, in preparation). *Social theories on risk and uncertainty. An introduction*. Oxford, Malden MA: Blackwell.